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97. A Study of the Effect of Knowledge Creating Capabilities on Corporate Performance

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Abstract

In response to the concern regarding the evaluation of knowledge management initiatives, this study introduces the concept of 'knowledge creating capabilities'. This concept refers to the balance of the four knowledge creation modes proposed in the SECI Model by Nonaka and Takeuchi (1995). The relationship of this concept with corporate financial performance is explored using two financial indicators on small and medium Japanese enterprises from the manufacturing sector. The empirical evidence shows the positive association of knowledge creation capabilities with financial performance.

Keywords: Knowledge Creating Capabilities, Corporate Performance, SECI bottleneck, Balanced SECI

Introduction

Over the past years, knowledge management (KM) has become one of the most strategic weapons that can lead to sustained increase in profits (Choi and Lee 2002). Consequently, one of the main motivations for a firm to pursue knowledge management initiatives is the improvement of business performance (Choi and Lee 2003). However, an effective approach to KM is essential to the success of contemporary organizations (Chou 2005).

As described by Chen and Chen (2006), issues such as measuring the value of a KM initiative and evaluating KM performance have become important topics for top management in Asia, Europe and America. Linking KM with financial performance indicators is a traditional approach which has shown results in the positive association between specific types of KM initiatives with financial performance (Choi et al. 2006). Despite the acknowledgement of this positive association, the same authors state that the research investigating the relationship between KM strategies and organizational performance has yielded inconclusive results. This can be confirmed by analyzing the different approaches that the researchers suggested were required in order to benefit from KM initiatives (Choi and Lee 2003).

Despite several descriptions provided for the KM process, it is commonly accepted that KM refers to acquiring, storing, diffusing and applying knowledge (Shin et al. 2001; Chen and Chen 2005; Benbya et al. 2004). Knowledge creation is a critical competitive weapon in today's global marketplace, without a continuous knowledge creation, a business is condemned to obsolescence (Choi and Lee 2002). We follow this concept and are consistent with studies which focus on knowledge creation (Choi and Lee 2002; Sabherwal and

Becerra-Fernandez 2003; Chou 2005).

Nonaka and Takeuchi (1995) introduced the SECI Model (acronym for Socialization, Externalization, Combination, Internalization), a model of knowledge creation based in the action and interaction between tacit and explicit knowledge.

Even though Nonaka suggested that a failure to build a dialogue between tacit and explicit knowledge can cause problems (Nonaka et al. 1994), many researchers have focused on separating these knowledge dimensions and measured the individual impact that explicit-oriented (or tacit-oriented) KM initiatives have on corporate performance (Bohn 1994; Hansen et al. 1999; Singh and Zollo 1998; Swan et al. 2000).

In contrast, this paper introduces the concept of “Knowledge Creating Capabilities”, and emphasizes the importance of “balance” between the four modes of knowledge conversion proposed by Nonaka and Takeuchi in their SECI Model.

The rest of the paper is organized as follows. Section 2 presents theoretical background. Section 3 describes data and metrics. Analysis and findings are addressed in section 4. Finally, discussion is presented in section 5.

Theoretical background

The SECI Model

Nonaka and Takeuchi suggested that one of the main reasons that Japanese companies have been successful is because of their expertise at organizational knowledge creation: the capability of a company to create new knowledge, disseminate it throughout the organization and embody it in its products, services and systems on a continuous basis. They argued that an organization is not merely an information processing machine, but an entity that creates knowledge through action and interaction of tacit and explicit knowledge (Nonaka et al. 1996). They also emphasized that the capability to continuously create new knowledge was more relevant than the simple stock of knowledge that a firm possesses at one point in time (Nonaka et al. 2000).

Their work has been widely accepted, validated (Nonaka et al. 1994) and applied in several research fields (Chou 2005). This included also internal (single organization) and multi-organizational perspectives (Rice and Rice 2005). Because organizational knowledge creation (distinct from individual knowledge creation) takes place when all four modes of knowledge creation are “organizationally” managed to form a continuous cycle, it can be viewed as an upward spiral process, starting at the individual level moving up to the collective level, and then to the organizational level, sometimes reaching to the inter-organizational level.

Bottlenecks in SECI Model

As previously mentioned, a failure to build a dialogue between tacit and explicit knowledge can cause problems (Nonaka et al. 1994). This can cause ‘bottlenecks’ in the process of knowledge creation. We believe that ‘bottlenecks’ can occur when the four knowledge conversion modes are not equally balanced. In other words, when a firm has either a lack of focus in any knowledge conversion mode (socialization, externalization, combination, internalization) or when it overly focuses its KM initiatives onto specific modes of the of SECI Model.

In response to the bottleneck issue, we introduce the concept of “Knowledge Creating

Capabilities”, which is defined as the level at which all four modes of SECI Model can work together as part of a common mechanism for knowledge creation. Knowledge Creating Capabilities is then not the sum of all knowledge creation activities by separate but a concept that emphasizes the importance of the balance level between the four modes of knowledge conversion.

Data and measures

We use an empirical approach to test the framework. This is consistent with other studies regarding KM and corporate performance (Choi and Lee 2002; Chang Lee et al. 2005).

Target Population

Companies listed in the “IT Management” Best 100 Enterprises list of 2006 in Japan were selected as the target population of this study. This sample is worth analyzing, as it provides information on firm performance of small and medium-sized Japanese enterprises over a period of 3 years. Moreover, a similar data set was also used in previous research relating business success with IT expenditure and organizational characteristics (Hirano 2005).

The target population is composed of 161 enterprises from the following industries: manufacturing (47.8%), transport and wholesale (18.7%), information and communication (13.0%), services (11.2%), construction and real state (8.1%) and agriculture (1.2%).

Measuring knowledge creating capabilities

Knowledge creating capabilities (KCC) were assessed by a questionnaire. It was composed by a subset of questions selected from Nonaka et al. (1994). The content covered all modes of SECI Model and considered all their subconstructs (identified and described in the same study using confirmatory factor analysis). The description of the questions was customized to the target sample of this study. The questionnaire included six items for each mode of SECI Model (24 items in total). Its validity and reliability are supported and detailed by Nonaka et al. (1994).

In order to measure the balance, the importance of each mode was first evaluated. A pool of activities was provided and the respondents were asked to select the tasks which were closer to their employees’ behavior. The pool of activities included typical tasks from socialization, externalization, combination and internalization modes (sample items are described on Table 1). Based on the selected items, the score for each mode of SECI Model was evaluated. The number of items the respondents were requested to select was half of the size of the pool (12 items); consequently, the respondent’s selection served as a method to assess the importance of each mode of knowledge conversion against the others.

Table 1: Questionnaire items sample

<i>Socialization (6 items)</i> <ul style="list-style-type: none"> - Needs and problems are drawn by direct contact with the client - Sharing your personal values and know-how that are difficult to verbalize through working together with colleagues
<i>Externalization (6 items)</i> <ul style="list-style-type: none"> - Sharing your ideas and images with others using charts and pictures - Raising new ideas through free discussion
<i>Combination (6 items)</i> <ul style="list-style-type: none"> - A new idea is created by using previous analyzed information and data

- Producing documents such as plans, specifications, reports, for implementing new concepts

Internalization (6 items)

- Taking successful examples from inside or outside the company and sharing them for use between departments and within your own department
- Exercise the knowledge gained through training, manuals and documents, and assess its effectiveness

The scoring for KCC was the minimum score of the four modes of SECI Model. This score represents the level at where all SECI modes can work together allowing the generation of an appropriate spiral of knowledge creation, such as the model proposed by Nonaka and Takeuchi (1995).

Figure 1 describes samples of knowledge creating capabilities and their evaluation criteria.

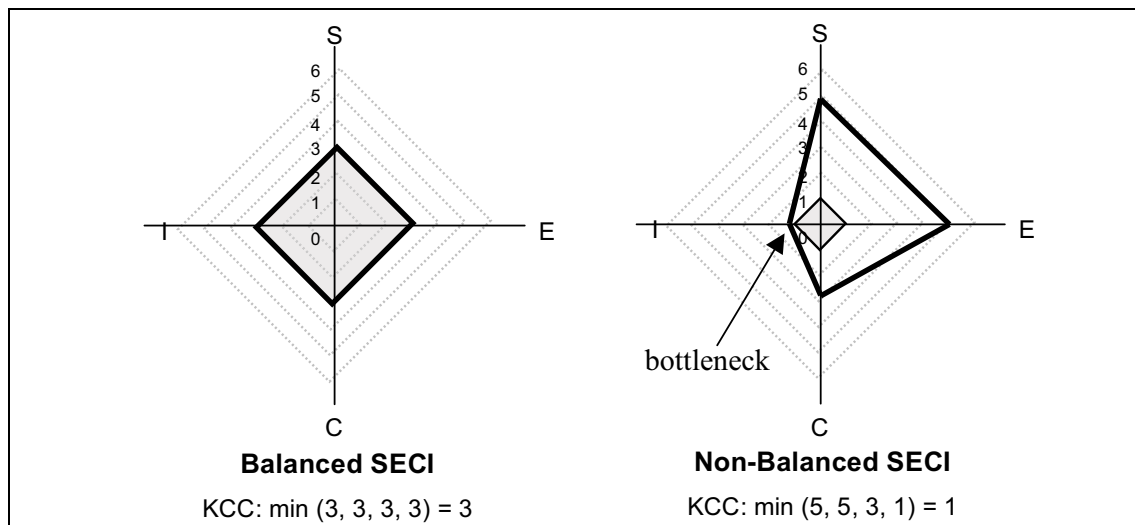


Figure 4: Sample of knowledge creating capabilities (balanced vs. non-balanced)

Measuring corporate performance

In this study corporate performance is defined as financial performance. Based on three-years-period financial data, two indicators were defined to measure financial performance: operating profit margin and labor productivity. Operating profit margin is calculated by dividing profitability by sales. Labor productivity is computed as profitability divided by number of employees.

Data Collection

A total of 161 questionnaires were distributed to the companies from the target population. As a result, a total of 69 companies corresponding to several industries answered the questionnaire.

Manufacture industry presented a good balance between response ratio and number of observations. It had a set of 38 observations, which represented a response ratio of about 50%. Due to these facts, this study is focused on manufacturing sector. From the collected data, a total of 11 responses were marked as invalid (incomplete data, negative productivity and outliers).

Analysis and Findings

Relationship between knowledge creating capabilities and corporate performance

The impact that knowledge creating capabilities have on corporate performance was tested on

manufacturing industry by using correlation analysis.

The findings show that there is a significant correlation between KCC and firm performance. Results from correlation analysis are reported on Figure 2.

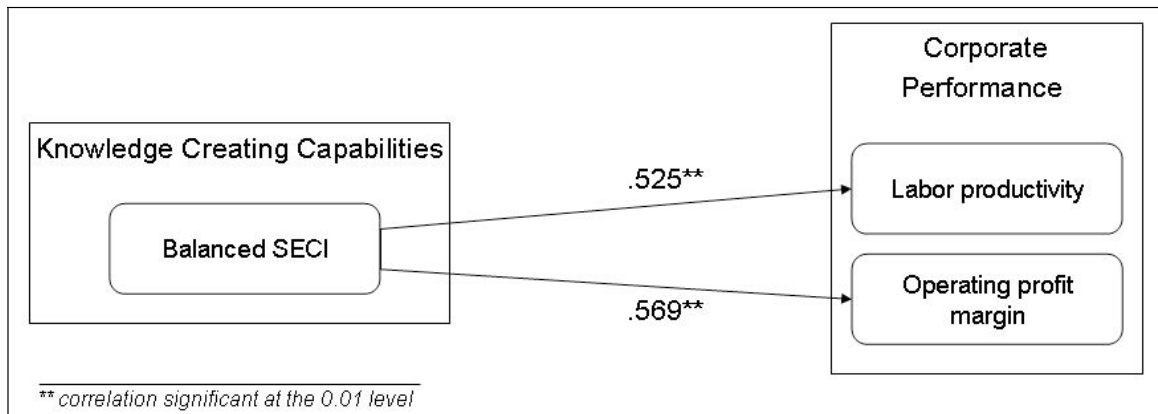


Figure 5: Correlation analysis results

These results confirm the importance of the balance between knowledge creation activities.

Furthermore, firms were grouped according their balanced score. ANOVA tests showed that there are significant differences between the levels of balanced SECI (knowledge creating capabilities). There are significant differences between non-balanced firms and firms with high level of balance. Figures 3 and 4 show these differences with respect to the financial indicators. The performance of “balanced firms” is higher if compared with non-balanced firms.

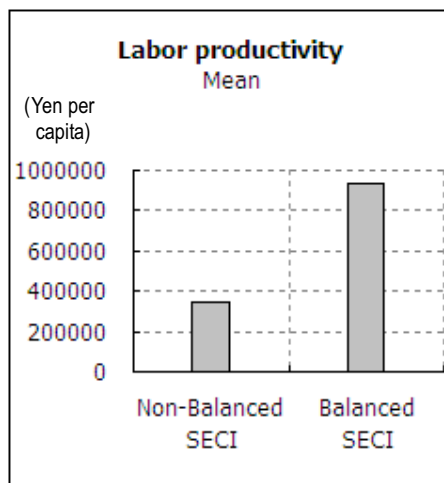


Figure 6: Differences of labor productivity

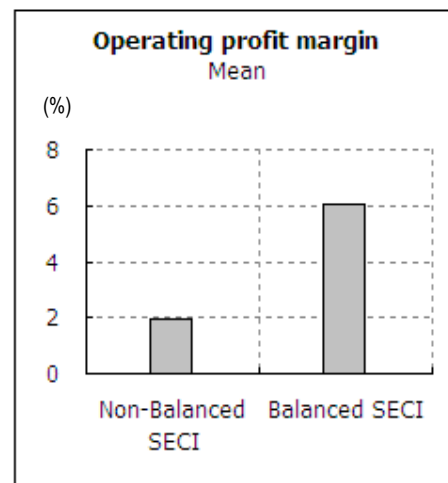


Figure 7: Differences of operating profit margin

From this results we can note that KCC has a significant effect on firm performance, $F(2,23)=4.66$, $p<0.05$ for labor productivity; and $F(2,23)=5.18$, $p<.005$ for operating profit margin. The significance of T-tests also confirmed the findings.

From the overall results we are able to verify the importance of a well balanced knowledge creation spiral (knowledge creating capabilities). In the knowledge creation cycle, the

“balance status” let firms to be ahead from the non-balanced firms in terms of financial performance (labor productivity and operating profit margin).

Discussion

In this study, the importance of *balanced* knowledge creating modes was emphasized. However this concept was indirectly noticed by previous researchers, it has been overlooked by the majority of them. The lack of emphasis from the academia on the importance of this concept, in addition with the few studies showing empirical evidence supporting this theory have driven firms to forget about the balance and, as an implication, have led them to pursue either tacit-oriented or explicitly-oriented knowledge management approaches.

This study links knowledge creating capabilities with financial performance, and shows empirical evidence where the concept of *balanced knowledge creating modes* supports corporate financial performance.

Despite empirical results showing that corporate performance is positively associated with knowledge creating capabilities, the character of this relationship is 'moderate'. This indicates that there may be other components affecting financial performance, such as organizational characteristics, business strategy and investment in strategic resources (e.g., information technology or human capital).

The purpose of this research in progress is to study the importance of the balance among knowledge creation activities in successful knowledge management initiatives. Based on the SECI Model, this work proposes *knowledge creating capabilities* as one concept influencing corporate financial performance. This relationship was validated with small and medium Japanese enterprises from the manufacturing industry.

While this work provides first insights regarding the relationship between knowledge creating capabilities with financial performance, this research field should be extended in order to understand how to create more value from KM initiatives. Complementarities among Knowledge Creating Capabilities and organizational characteristics should be explored as it could add more insights to this field. Finally, it is required to identify any industry, country or even cultural dependence that may affect this relationship.

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